CENTER FOR DEVELOPMENTAL AND MOLECULAR BIOLOGY

CENTER

The Center for Developmental and Molecular Biology (CDMB) was established in 1993. One of the Center objectives has been to investigate, characterize and synthesize several chemotherapeutic proteins, eg. lytic peptides and to develop cost-effective production methods. One of these methods involves the production of the proteins using genetically engineered animals (transgenic animals) that can secrete the proteins preferably at high concentrations in their milk.

TECHNOLOGY

Technologies are being developed for the high efficiency production of valuable proteins, not normally found in animal milk, by producing transgenic animals. A specific gene (DNA sequence) that codes for a specific protein is placed under the genetic control of a promoter that is expressed in mammary cells during lactation. The "genetically engineered DNA" is introduced into the embryo of selected animal species which, when successful, express the desired protein in the milk producing cells or glands. The expression of the foreign protein in the milk in relatively high quantities provides a cost-effective method of producing the valuable proteins.

ACCOMPLISHMENTS

Genes for specific proteins have been sequenced and prepared for injection into animal embryos. These genes have been successfully injected in mouse embryos and the transgenic nature of the new-born animals have been confirmed. Expression of a valuable protein has been confirmed in milk. Expression of the proteins in transgenic goats is highly desirable because the animals produce significant quantities of milk and are relatively easy to breed and maintain.

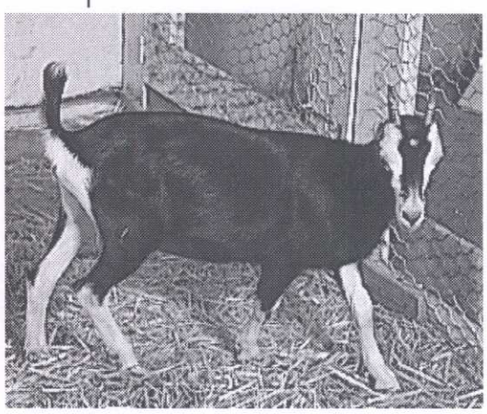
CONTACT

Directors: Kenneth White, Ph.D. & John Morrey, Ph.D.
Utah State University, Logan, Utah
Phone (435)797-2149, Fax (435)797-2118, kwhite@cc.usu.edu

Can You Imagine...

. . . transgenic dairy animals used as manufacturing sites for the production of high value proteins in their milk.

THE CENTER INVESTIGATES SPECIFIC PROTEIN MOLECULES THAT MAY HAVE THERAPEUTIC VALUE AND THE PRODUCTION OF THESE PROTEINS IN THE MAMMARY GLANDS OF GENETICALLY ENGINEERED ANIMALS.



■ A transgenic goat produced at the Center has been evaluated for the expression of certain valuable proteins in her milk.